



The Universal Times

December, 1999

The Thacher School, Ojai, California

Forward to SSP2000

by Richard D. Bowdon, SSP '74

October, 1957: The Cold War raged, and the Soviet Union stunned America and the world by beating us into space with Sputnik. Calls rang out for a nationwide mobilization to catch up.

The Thacher School, in cooperation with Caltech, Pomona, and UCLA, developed The Summer Science Program. Its radical (at the time) premise: the best way to learn science is by doing it. The best way to turn bright teenagers into young scientists is to have them team up with their peers to solve a difficult, interesting scientific problem.

Forty years later, much has changed. The Cold War is over. Global competition is more economic than military. Government funding for science education waxes and wanes like the moon. Still, no one

says America is doing a good enough job of teaching science & math.

The Thacher School is staying at the forefront. Its new summer program, "Teach the Teachers", will help schoolteachers get more out of the technology already in their classrooms. But every dorm will be spoken for, unavoidably displacing the smaller SSP.

Now it's up to the alumni to continue SSP into the new century. Educational fads come and go, and the Internet may replace high schools, but the experience of SSP will be as valuable to a teenager in 2010 as it was to us. For that kid, there will still be no substitute for total immersion in the exciting, challenging, rewarding intellectual environment of SSP.

The breadth and depth of support from alumni will largely determine whether SSP will continue. We need to raise \$80,000 in gifts, grants, and sponsorships by Spring. Send an email or letter now pledging a future donation, then you will be contacted when the IRS confirms Summer Science Program, Inc.'s tax-

Send your pledge to:
alumni@summerscience.org
-or-
Summer Science Program, Inc.
c/o John Rabold, Treasurer
9198 Skyline Blvd.
Oakland, CA 94611-1748

Asteroids, Teenagers, Real Science, and the Movies

by Stephen L. Cotler, SSP '60

Who cares about asteroids? Everyone. Hollywood is proof.

In 1998, *Armageddon* and *Deep Impact* hit the theaters just months after the TV miniseries *Asteroid* fireballed into homes. And what about outer space and worlds beyond Earth? Just consider this list: *Men in Black*, *Contact*, *Independence Day*, *Starship Troopers*, and all the *Star Wars* and *Star Trek* megahits!

I gave the closing address at SSP '97 and revisited my youthful scientific adventure of almost 40 years before. My son attended in 1998. Both of us know it changed our lives. I do not know of another summer program that offers the excitement, the rigor, and the hands-on experience of SSP.

SSP has always relied on outside grants; tuition covers only about a quarter to a third of expenses. In the early years support came from the National Science Foundation, and more recently from alumni, corporations and foundations.

In order to offer SSP next summer, we must raise at least \$80,000 in grants, corporate sponsorships, and alumni gifts. I recently sent out an email to some alumni asking for help in this search.

Every SSPer works with, is friends with, does business with, or lives next door to corporate contacts. (Don't overlook Uncle Wally or your fishing buddy). We need these contacts. We are not asking you to solicit; we will make the calls.

Think hard. Do not edit yourself. Be creative! A tech-based company might be best, but there are good corporate citizens that care about science education everywhere: banking, baking, or broadcasting ... retailing, real estate, or rollerblading.

We are not necessarily looking for huge contributions. A wide network of sponsors (even small ones) builds publicity, interest, student applications, contributions, volunteerism, etc. Please take a few moments and give us at least **two referrals**, including: company, contact, phone/email ... and a few words about your connection with them, no matter how tenuous. Email them right now to: scotler@summerscience.org

With your help, SSP will continue...and more kids, as we once did, will have the opportunity to do more than just watch movies about asteroids.

Stephen L. Cotler is the Chairman of Summer

"Think hard. Do not edit yourself. Be creative!"

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The Search for ExtraTerrestrial Intelligence

SETI researcher to be UT Science Advisor

by Robert Crawford, SSP '70

The Universal Times has a new Science Advisor: **Dr. Janice Bishop**, SSP '81, TA '86-'87! Dr. Bishop is now a Principal Investigator with the SETI Institute, where her research focuses on the chemistry and geology of the Martian surface.

She received a BS in chemistry and MS in remote sensing from Stanford and a PhD in chemistry and planetary geology from Brown University in 1994.

The goal of her research is to understand the chemical and geological history of the Martian surface in order to better understand the Earth's early history and how life evolved on Earth, and possibly Mars. She studies Martian surface alteration processes through analysis of laboratory spectra of analogue materials, and analysis of spectral, magnetic and chemical data from Mars Pathfinder and Mars Global Surveyor.

Dr. Bishop explains, "The SETI Institute today includes Project Phoenix as well as general research to further the Drake equation – looking for habitable planets and trying to explain the origin of life. The SETI@Home project [see article this page] is at UC Berkeley, but it has a similar objective to the SETI Institute's Project Phoenix – the search for extra-terrestrial signals as in the movie *Contact*. Many of us working on Mars research at NASA-Ames are SETI employees like myself. We are funded by NASA

security, but get in return the opportunity to work on interesting research topics."

I recently spoke with Dr. Bishop regarding research on minor planets.

UT: There seems to be much more interest in asteroids today. Is that true, and if so, why?

Dr. Bishop: People are more aware today of the possibility of an impact with Earth and how severe the consequences of that could be. Hollywood and the media have popularized this issue.

UT: Beyond efforts to discover new near-earth objects, what research is being undertaken to better understand them?

Dr. Bishop: The NEAR spacecraft, launched as a NASA Discovery Mission, has investigated several near-earth asteroids at close range and is providing compositional information.

UT: You will be contributing an article for the next issue of The Universal Times. What are your plans for the article?

Dr. Bishop: Moons have been identified around two asteroids and are under continued investigation. A moon was found at Ida by the Galileo spacecraft in 1994 and recently at (45) Eugenia by an international team of astronomers using a ground-based telescope.

Robert Crawford is Chairman of the Alumni Relations Committee.

Try this at home!

by Anita Kulukian, SSP '94

All you "Contact" fans out there should check out <http://setiathome.ssl.berkeley.edu>. This is the site for a research program that is analyzing radio telescope data from the Arecibo Radio Observatory in hopes of finding extraterrestrial intelligence. The program relies on millions of Internet-connected computers for its data processing – done by a screensaver that you install on your home computer. The screensaver downloads the information, processes it, sends the results back, and then repeats the process. About 1.5 million people are participating in this effort, comprising the largest computing project in history.

If you want to participate in this project, download the screensaver from the website. It takes about five minutes to install. Set up an account for yourself (you need to

and request a password. Participants can also form groups, or join pre-existing groups. The official group for the Summer Science Program is "Team SSP," not to be confused with the unrelated group "SSP." If you already have an account, you can join the SSP group without affecting your personal stats. The same account can also be used on multiple computers.

Just let the program run as your screensaver and voila! instant potential ETI signals (but most likely random noise) displayed visually on your monitor. The screensaver downloads a data unit in seconds when you're online and takes an average of 25-35 hours to process each one offline while your computer is unattended. My dinosaur is taking 90 hours, so don't worry if your computer is slow as well. Just dream of a G4 entering your life soon. (Editor's note: Set the screensaver

to "Go to blank screen" to cut your processing time. The processing graphics are computationally intensive.)

So what's the point? "There's the small but captivating possibility that your computer will detect the faint murmur of a civilization beyond Earth." If you are the lucky person whose computer finds it, you will be listed as a co-discoverer!

1998 SSP'ers go to college

We asked the SSP Class of 1998 to tell us where they chose to attend college. As always, we got back a list of the top universities in the nation:

Brandeis Univ., Caltech, Carleton College, Carnegie-Mellon, Case Western Reserve, Chicago, Columbia, Cornell, Dartmouth, Harvard, Harvey Mudd College, MIT (2), Princeton, Rice, Tufts, UCLA (3), UC Berkeley (3), UC San Diego (2), Washington Univ.

Farewells and welcomes

Dr. Stuart Stephens last year announced that the summer of 1999 would have to be his last with SSP, given the increasing demands--and professional rewards--of his work at the Jet Propulsion Lab. In his six years with the Program, Dr. Stephens strengthened it in many ways. He brought remote observing to the Thacher campus through the Telescopes in Education program and gave our students an inside look at the Mount Wilson instruments which they used in order to do that observing. His lectures and the not-open-to-the-public tours which he arranged at JPL instilled in our students an excitement about planetary and space exploration; they even had the opportunity to visit the "clean rooms" where the space probes are assembled. Dr. Stephens brought guest speakers of national stature to the campus; their example and his own demonstrated that the fullest and most rewarding life is the one which is expansive and varied, not one focused on a single dimension. Finally, Dr. Stephens' management, counseling, and disciplinary skills have been of the highest order. He continues his association with SSP as a Director and chair of the Academics Committee.

At JPL, Dr. Stephens continues to work on the Cassini project--science planning for the 4-year tour at Saturn starting in 2004. But he has also become Payload Instrument Engineer for the meteorology investigations to be done by the Mars Polar Lander. The Lander will arrive on December 3, and for three months Dr. Stephens will be spending Mars days (24 hours + 38

minutes) helping to operate the instruments (including a microphone!) on the Martian south pole.

Associate Academic Director (and 1979 alumnus!) **Dr. Tracy Furutani** will replace Dr. Stephens. He received his B. S. from Caltech, his M. S. from Stanford, and his Ph.D. from the University of Washington. Currently teaching Earth Sciences and Astronomy at North Seattle Community College, he devotes large amounts of his time to college and career advising. His open-door policy served our SSP students well, also, and they gave him enthusiastic reviews at the end of the Program. "My motivation for wanting to teach at SSP is simple: I think this is the best way in which I can repay a debt that I have owed since 1979. Not only did the program grant me a scholarship, but it also provided a first glimpse into the world of research for this otherwise jaded urban youth."

Roger Klausler, Administrative Director for the past seventeen years, will be leaving the Program after the current transition. "SSP is in good hands, with a strong and committed Advisory Board and an energetic Academic Director.... Little did I imagine when I came to Thacher in 1975 that six years later I would be taking on a job which allowed me to work with some of the brightest kids in the country, professional educators and researchers and teaching assistants who gave up their summers for small financial rewards, and scientists of international renown."

Alumni News

The '60s: JEFFREY TUFTS '61 is Line Maker and Timer for the Los Angeles Turf Club. CHARLES WOOD '61 is a Physics Teacher in West Chester, PA. WILLIAM VAN SNYDER '63 is a Mathematician and Computer Scientist at JPL. DENIS LORING '64 opened the NYC Office of RGA/Swiss Financial Group; he serves as Executive VP.

The '70s: SUSAN LEVINE '76 is Director of Quantitative Portfolio Management with TIAA/CREF in New York. HAROLD SCHLOSS '76 is at St. Jude Medical in Sylmar, CA, where he serves as Senior Staff Scientist. MICHAEL MAZOUR '77 is in computer science applications in Mountain View, CA.

The '80s: JOSHUA COLWELL '81 is a Research Associate at the Univ. of Colorado. SARAH RICHARDS GROSS '84 is Senior Learning Skills Counselor at UC San Diego. ANDREW GROSS '84 is a Computer Security Researcher. SHUBBER ALI '85 led a study on the commercialization of the International Space Station for NASA; he also has been assisting start-up companies in the reusable launch vehicle industry. MICHELLE CATE McCOWN '85 describes herself as "full-time wife & mommy; with my husband and five children I am living out my dream career" in Brighton, CO. RICH REIMER '85 received his M.B.A. from Harvard Business School last year; he produces sales, marketing, and customer services applications for Siebel Systems in San Mateo, CA. HERRICK WUN '89 is doing Residency at NYU Medical Center; he received his M.D. last year. SARAH RUSSELL '85 is a Graduate Student in Physical Oceanography at MIT.

The '90s: PEDRO MELO '90 is an Electrical Engineer at Microtek Lab in Redondo Beach, CA. ALEXANDER CASTRO '91 is a Program Manager at Microsoft. KAREN SHELL '91 is a Graduate Student at Scripps Institute of Oceanography. RYAN PHILLIPS '93 is working on his B.S. in Mechanical Engineering at Colorado State. ADITI RAO '94 is a User Interface Designer with NEC Research Labs in Reseda, CA; she graduated Magna Cum Laude from Wellesley with a double major in Mathematics and Media Arts and

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Summer Science Program
The Thacher School
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Ojai, CA 93023-8304

"While judging at the International Science Fair earlier this year I had dinner with a number of Nobel prize winners and many high school students. I could (and did) say truthfully that SSP is the best of any pre-college program in the US I know of. This is a unique role which must not be lost."

Douglas Duncan, SSP '68, TA '74-'76
Professor of Astronomy and Astrophysics,
Univ. of Chicago
National Education Coordinator,
The American Astronomical Society

Guest Speakers 1999

- **Dr. Maarten Schmidt**, Professor of Astronomy, California Institute of Technology: "Quasars and Gamma Ray Bursts"
- **Dr. Gary Horne**, Chair, Mathematics Department, St. Theresa School, Oakland, CA: "Mathematics and Psychics"
- **Dr. Tony Irving**, Research Professor, University of Washington: "Meteorites and Asteroids"
- **Dr. Eric Norman**, Physicist, Lawrence Berkeley National Lab: "Stellar Alchemy: Origin of the Chemical Elements"
- **Dr. Paul Mac Cready**, Chairman, AeroVironment, Inc.: "Aeronautical Creativity"
- **Dr. Karl Stapelfeldt**, Research Scientist, Jet Propulsion Laboratory: "Hubble Space Telescope: Images of Planetary Birth"
- **Dr. Seth Shostak**, Public Programs Scientist, SETI Institute: "The Search for Extraterrestrial Intelligence: Looking for ET"
- **Mr. Rand McKinney**, Software Engineer, Netscape Corporation and **Ms. Kim Hager**, Technical Writer, Symantec Corporation: "Internet Applications Software: Past, Present, and Future"
- **Mr. Lawrence Sverdrup**, Research Scientist, Trex Enterprises: "The Mad Scientist Show"
- **Ms. Tracy Weinstein**, Missions and Systems Architecture Section, Jet Propulsion Laboratory: "Mars Sample Return"
- **Dr. Janice L. Bishop**, Principal Investigator, SETI Institute/

What you can do now

- ◆ Send a pledge to either the email or USPS address on page 1
- ◆ Check out the new website at **www.summerscience.org**
- ◆ While you're in the website, update your personal address (email and USPS) on the designated form
- ◆ Join the new SSP email discussion forum by sending a message to:
SSPforum-subscribe@onelist.com
- ◆ Get your employer to sponsor SSP
- ◆ Email your personal news to **alumni@summerscience.org**
- ◆ Volunteer to work on a committee
- ◆ Talk to a local administrator, science teacher, and teenager about SSP